

# Through-beam ultrasonic barrier

## UBE4000-30GM-SA2-V15

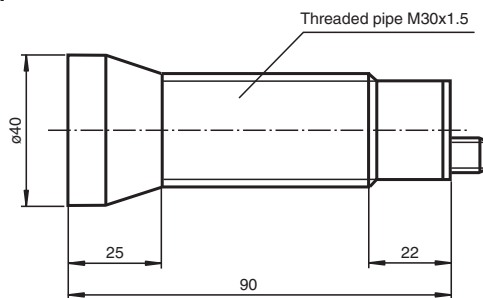


- Reliable detection of transparent materials
- High switching frequency
- Adjustable sensitivity
- Adjustable switch-on delay
- Small angle of divergence
- Protective functions
- Emitter and receiver included in the delivery package

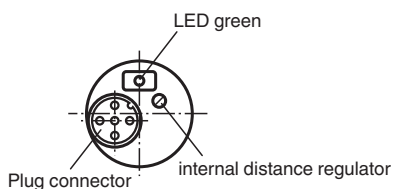


### Dimensions

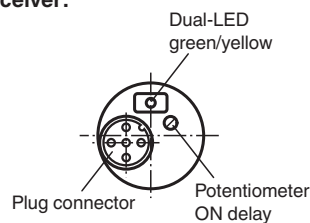
#### Dimensions:



#### Emitter:



#### Receiver:



### Technical Data

#### General specifications

Sensing range	0 ... 4000 mm , distance emitter-receiver 500 mm ... 4000 mm
Through-beam mode	Single path ultrasonic switch
Reference target	receiver
Transducer frequency	85 kHz

#### Indicators/operating means

LED green	alignment aid OFF: no ultrasonic signal flashing: uncertain area ON: positive reception
LED yellow	switching state

#### Electrical specifications

Operating voltage	$U_B$ 18 ... 30 V DC , ripple 10 % <sub>SS</sub>
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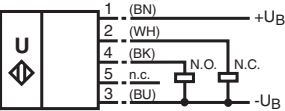
Technical Data

No-load supply current	$I_0$	35 mA emitter 25 mA receiver
<b>Output</b>		
Output type		2 switch outputs PNP, normally open/closed (complementary)
Rated operating current	$I_e$	200 mA
Voltage drop	$U_d$	$\leq 2.5$ V
Switch-on delay	$t_{on}$	100 ... 3000 ms
Switching frequency	$f$	$\leq 15$ Hz
<b>Compliance with standards and directives</b>		
Standard conformity		
Standards		EN 60947-5-2:2007+A1:2012 IEC 60947-5-2:2007 + A1:2012
<b>Approvals and certificates</b>		
UL approval		cULus Listed, General Purpose
CCC approval		CCC approval / marking not required for products rated $\leq 36$ V
<b>Ambient conditions</b>		
Ambient temperature		0 ... 60 °C (32 ... 140 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
<b>Mechanical specifications</b>		
Connection type		Connector plug M12 x 1 , 5-pin
Degree of protection		IP65
Material		
Housing		nickel plated brass; plastic components: PBT
Mass		160 g each sensor
Dimensions		
Length		90 mm
Diameter		40 mm

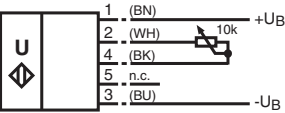
Connection Assignment

Standard symbol/Connection:  
(version A2, pnp)

Receiver:

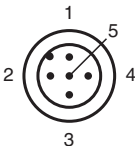


Emitter:



Core colours in accordance with EN 60947-5-2.

Connection Assignment



Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

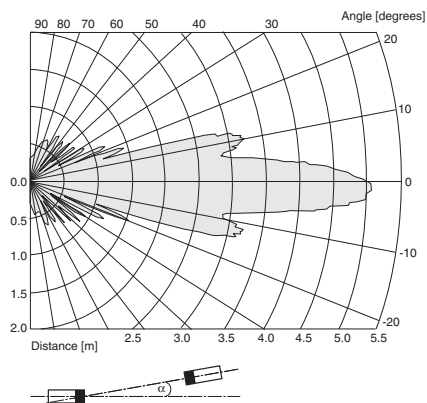
## Connection Assignment

Wire colors in accordance with EN 60947-5-2

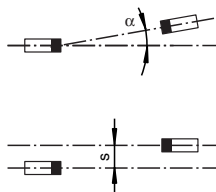
1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)
5	GY	(gray)

## Characteristic Curve

### Characteristic response curves



### Alignment



## Additional Information

### Description of the sensor functions

#### Remote potentiometer

The distance range of the through-beam ultrasonic barrier can be adjusted with the potentiometer integrated in the emitter, or via a remote potentiometer connected to the emitter.

The remote potentiometer simplifies the adjustment of the distance range if the sensors are installed in an inaccessible location. A 10 k $\Omega$ /0.3 W potentiometer serves as the remote potentiometer. The connection is realised using the plug connector pins 2 and 4 of the emitter (see: Electrical Connection).

The following distance ranges can be set using the remote potentiometer:

Adjustment of the internal distance regulator	Distance range adjustable via remote potentiometer
Minimum switching point	0 m ... 2 m
Maximum switching point	2 m ... 4 m

When operating without a remote potentiometer, the plug connector pins 2 and 4 must be bridged.

#### Adjustment

Turning the potentiometer on the emitter to the left (counterclockwise) causes a reduction of the transmission power. Thus, the through-beam ultrasonic barrier becomes more sensitive.

**Note:** If no remote potentiometer is connected and the connector pins 2 and 4 are not bridged, the emitter always operates at maximum transmission power. The through-beam ultrasonic barrier then has the lowest sensitivity. Turning the transmitter side potentiometer won't have an effect, then.

#### Alignment

When adjusting the emitter and receiver, take care to align them as precisely as possible.

Angular tolerance:  $\alpha < \pm 2^\circ$

maximum offset:  $s < \pm 5 \text{ mm}$

A through-beam ultrasonic barrier consists of a single emitter and a single receiver.

#### Caution

Mount or replace emitter and receiver only in pairs. Both devices are optimally matched to each other by the manufacturer.